

Utilizing the Fish-Bone Model to Identify Systems Errors During Pediatric Morbidity and Mortality Conference

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Background



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“End Result Card”

Face of End Result Card

Name	Age	M. W. S.	Date of Adm.	Date of Operation	Disp. No.
Mr. Edward James Sullivan	45		8/2/14	7/7/14	504
Addr. of Pt. 10 Crescent St., New York City, N.Y.					
- - - - - Phys. Dr. C. M. Black, 16 Grove St., Boston.					
From, Addr. of Ref. Mrs. George White, Elm St., Salem, Mass.					
From, Dis. Duodenal ulcer, with gross doubt of cancer of pylorus and stomach.					
Pathol. Dis. Ulcer lesser curvature of stomach about an inch from pylorus. Tumor very hard and suggested cancer.					
Cause or effect of Epigastric pain soon after meals since September. Vomiting. Anhydria. No hematemesis but some melena.					
Op'ty C. N. Miller. rad. C. W. Foss and C. C. Colby.					
Anst. Ether and local novocaine. Ether by C. C. Leed.					
Op'ty. Report, Pt. Tumor size pigeon's egg on lesser curvature of stomach. Partial gastrectomy. Gall bladder felt as if full of stones. Duodenum normal except for slight induration of pylorus. Closed without drainage.					
Cause of Operation None. Except that during convalescence he vomited several times without apparent cause.					
Aut. No. Path. Report by J. H. Wright. Cancer.					Signed A. B. C.

Reverse of End Result Card

Date	Results
July 15, '15	Remained well until March, 1916, since which time similar symptoms returned, and also hematemesis and epigastric tumor.
Recently	July 18th. Exploration showed numerous metastases in liver and abd. glands. No crop. Discharged two weeks later.

Background

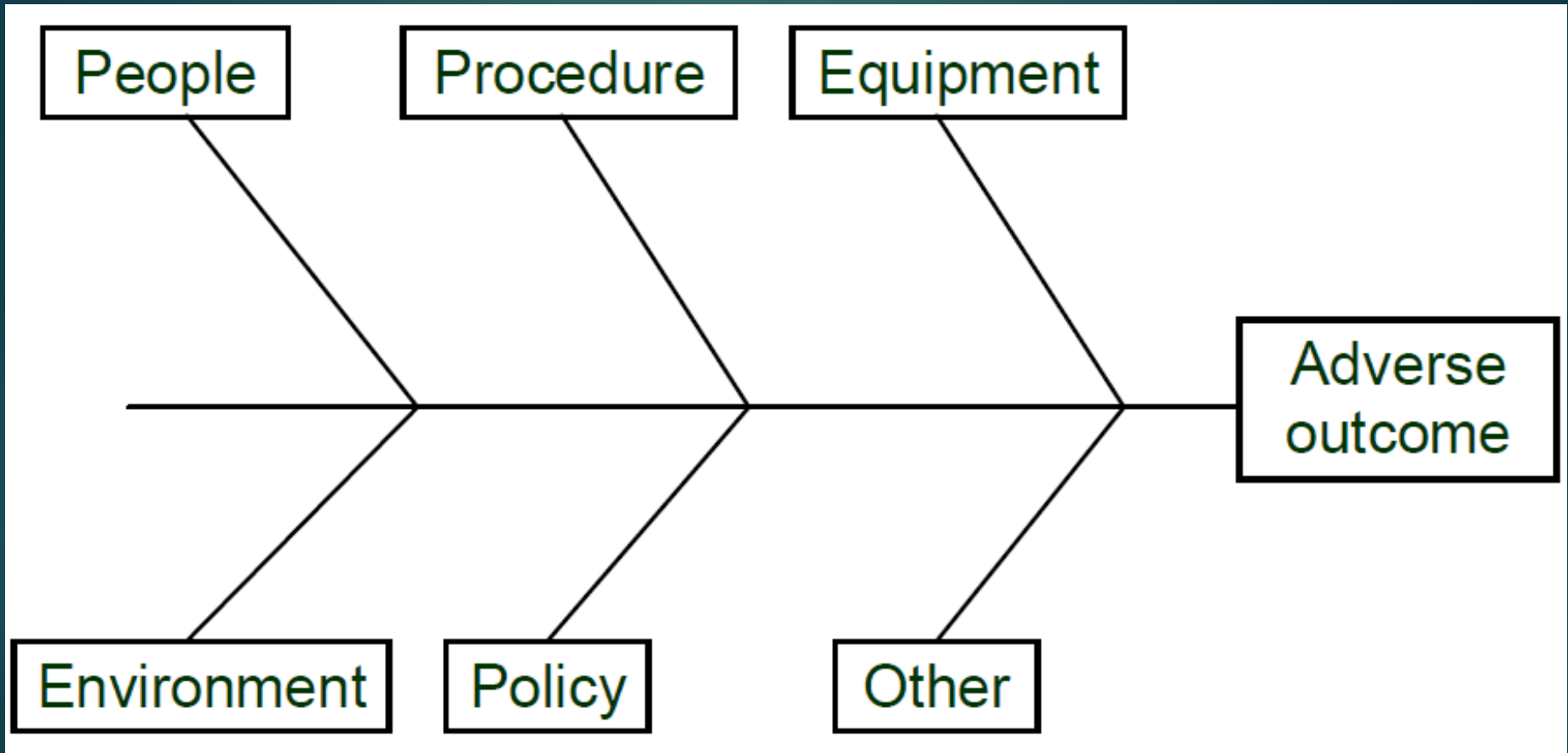
- ▶ Morbidity and Mortality (M&M) conference = venue to discuss medical errors and/ or adverse outcomes.
- ▶ Heterogeneous focus¹:
 - ▶ Unexpected morbidity and mortality
 - ▶ Suspected medical error
 - ▶ Teaching value
- ▶ The risks of traditional M&M²:
 - ▶ Perception of “blame”
 - ▶ Perception of emphasizing individual error

Background



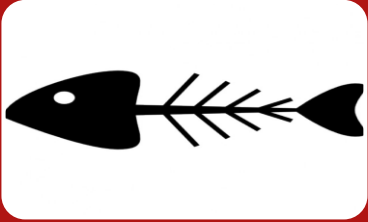
- ▶ Gaps:
 - ▶ Lack of standardized case discussion process
 - ▶ Emphasis on unexpected adverse outcomes
 - ▶ Emphasis on individual rather than potential system errors

Fish-Bone Model



Deis, JN, et. al. (2008) "Transforming the Morbidity and Mortality Conference into an Instrument for Systemwide Improvement." *Advances in Patient Safety: New Directions and Alternative Approaches*, 2(08-0034-2).

Rationale



Realign and Focus Discussion



Non-Punitive Environment



Recognize System Strengths & Shortcomings



Engender Change

M&M Conference Format



- ▶ Pediatric Chief Residents conduct quarterly M&M Conferences per academic year.
- ▶ The Fish-Bone Model implemented in 2015-2016.
- ▶ Prompt audience to dissect case via Fish-Bone Model.
 - ▶ Identify components that contributed to the adverse outcome

People

Procedure

Equipment

- Patient and family
- ED attending
- Pediatric intern and senior
- Surgery intern and senior
- Surgery and Ward Attendings
- Radiologist

- Transfer from outside hospital
- Hand-overs
- Review of records by:
 - Surgery
 - Pediatrics
 - Radiology
 - Transferring ED physician

- Electronic Health Record
- Health record from outside institution
- CT abdomen/pelvis
- X-ray

Adverse outcome

- Outside ED (Secondary Center)
- VMC ED + VMC (Tertiary Center)
- Pediatric Ward
- Time: Late at night
- Face to face vs. phone

- Transfer between services:
 - Who should be informed?

- Resident knowledge and comfort
- Hierarchy of communication

- Poor communication
- Delayed patient care
- Parent anxiety
- False assurance

Environment

Policy

Other

M&M Conference Format Continued

- ▶ After dissection of a case via the Fish-Bone Model, 1-2 components were emphasized for learning
- ▶ Literature presented to:
 - ▶ Address medical and/ or policy knowledge gaps
 - ▶ Explore how systems-based errors were corrected at other institutions



Outcomes Assessments



- ▶ Standard evaluations were reviewed
- ▶ M&M Specific Evaluation form was created

Results



- ▶ Summary of M&M Content
- ▶ Standard Pediatric Grand Rounds Evaluations
- ▶ Pilot Data from MM Specific Evaluation

Summary of Cases

Table 1: Clinical Areas Represented

Clinical Area	Number of Cases
Inpatient	3
Outpatient	1
PICU	1
Newborn Nursery	1

Table 2: Summary of Adverse Events

Adverse Outcome	Number of Cases
Procedural complication	1
Delay in diagnosis	3
Loss of laboratory sample	1
Prolonged length of stay	1

Results: Standard Evaluation Forms (2015-2016)

- ▶ Total of 118 attendees were present at three pediatric M&M Conferences for the 2015-2016 academic year.
- ▶ Total of 60 attendees (~50%) completed evaluations.

Table 3: Summary of Standard Evaluation Responses (2015-2016)

	Excellent	Good	Fair	Poor
Content	95%	5%	0%	0%
Relevance to Practice	87%	13%	0%	0%
Opportunities for Questions	86%	12%	1%	0%
Faculty Teaching Skill	85%	15%	0%	0%

Results: Standard Evaluation Forms (2014-2015)

- ▶ Total of 159 attendees were present at four pediatric M&M Conferences for the 2014-2015 academic year.
- ▶ Total of 88 attendees (~55%) completed evaluations.

Table 4: Summary of Standard Evaluation Responses (2014-2015)

	Excellent	Good	Fair	Poor
Content	87%	13%	0%	0%
Relevance to Practice	87%	13%	0%	0%
Opportunities for Questions	87%	13%	0%	0%
Faculty Teaching Skill	84%	16%	0%	0%

Results: Standard Evaluation Forms (2015-2016)

- ▶ “Very well done! I like the literature based approach (fishbone).”
- ▶ “This was by far one of the best M&M conferences. It was interactive and was great as it required audience participation.”
- ▶ “Excellent cases and excellent use of the fish bone model for both of them.”
- ▶ “Very good and well organized presentation of case, easy to follow along details and timing which helped set the stage and important in this case. Good identification of factors included.”

Results: Standard Evaluation Forms (2015-2016)

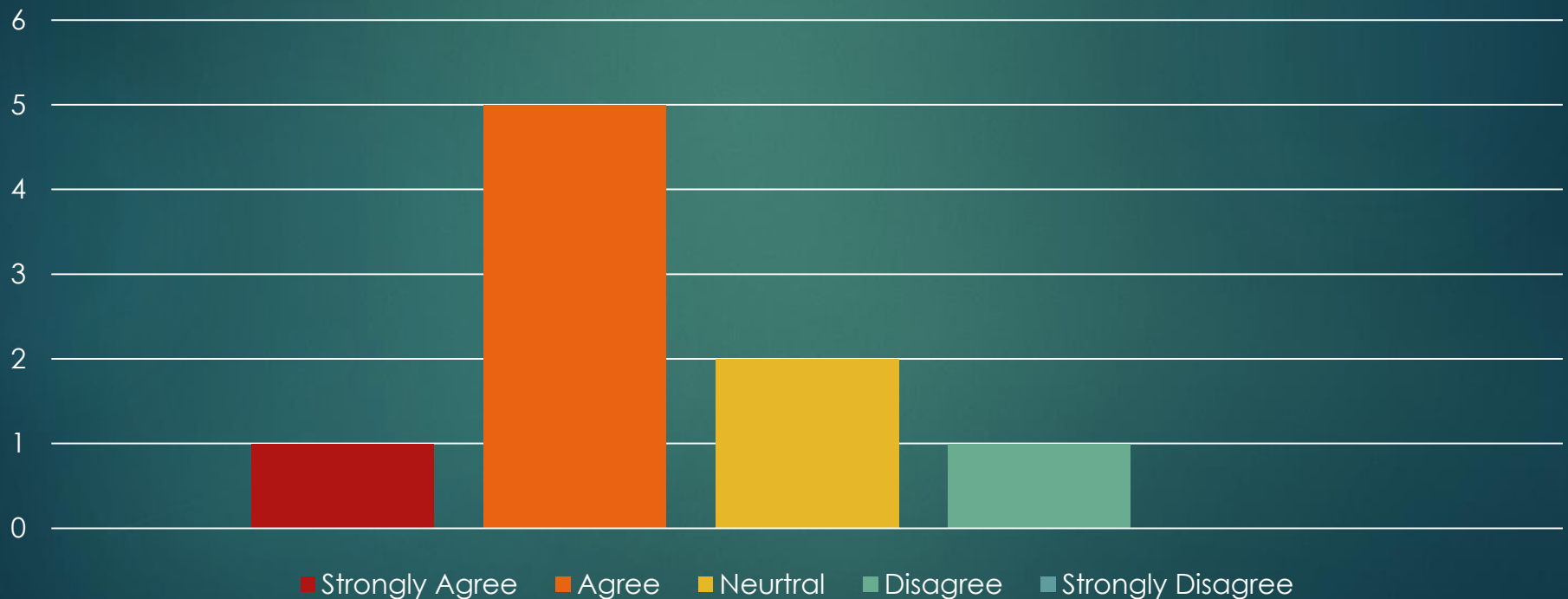
- ▶ Did you learn something that could warrant a change in your practice.
 - ▶ “Yes as always improving communication between providers and other team members is very important.”
 - ▶ “Systematic process for error/event evaluation.”

M&M Conference Specific Evaluation

- ▶ 11 question survey
 - ▶ Familiarity of respondents with Fish-bone model prior to use in Pediatric M&M Conferences
 - ▶ Impact of use of the Fish-bone model on improving ability to identify systems errors
 - ▶ Creation of a non-threatening environment to discuss cases
- ▶ Pilot Survey Sent to Pediatric Faculty (10 Responses)

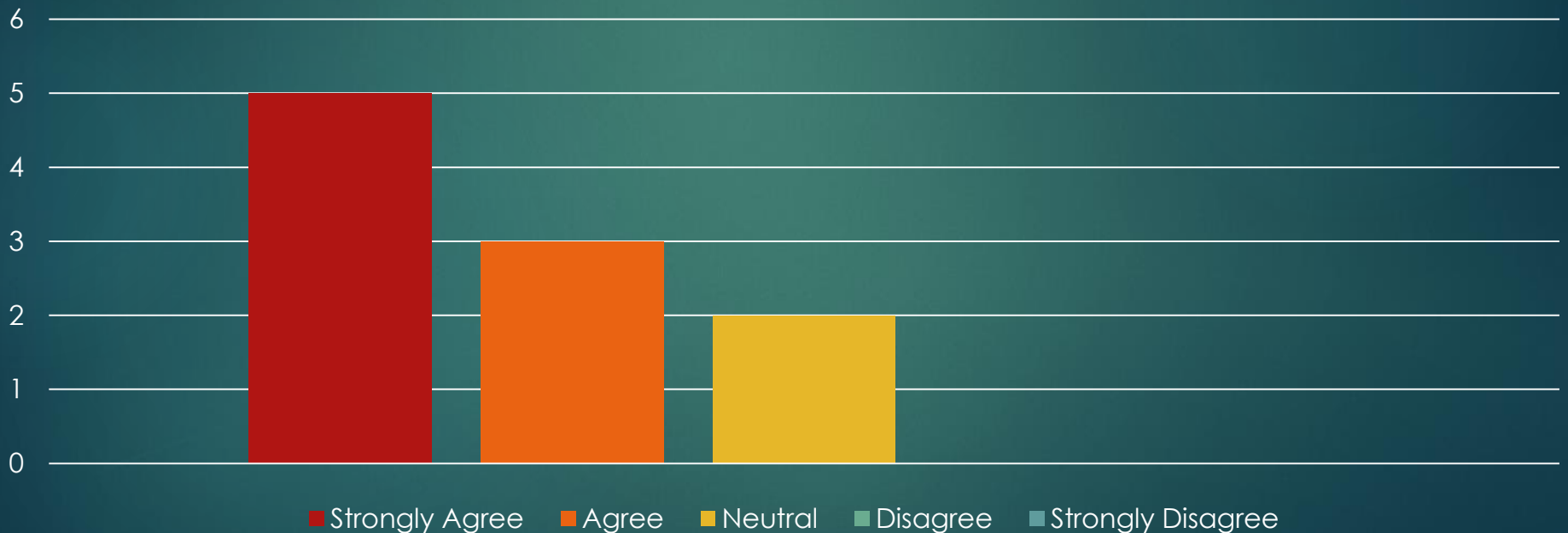
M&M Conference Specific Evaluation: Pilot Data

Use of the Fish-Bone Model During Pediatric MMC Has
Improved My Ability to Identify System-Based Errors



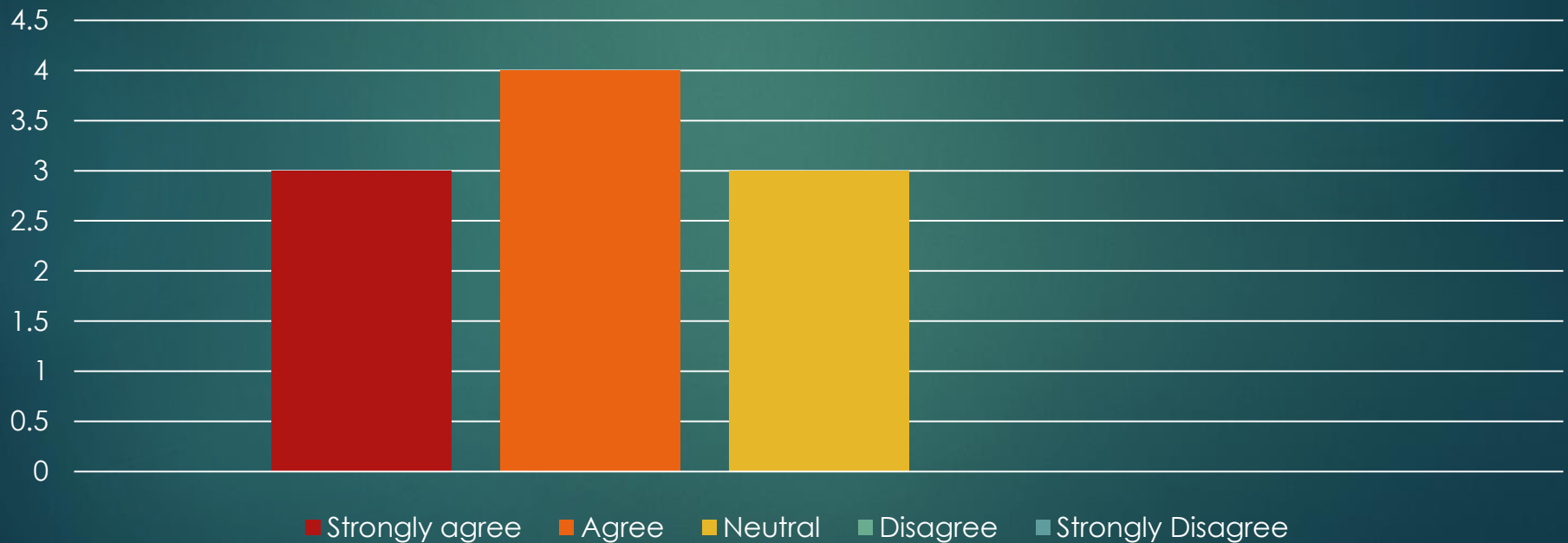
M&M Conference Specific Evaluation: Pilot Data

Use of the Fish-Bone Model During Pediatric MMC Has
Improved Discussion Of Cases Presented During the
Conference



M&M Conference Specific Evaluation: Pilot Data

Use of the Fish-Bone Model During Pediatric MMC
Creates a Non-Threatening Environment for Discussing
Patient Cases



M&M Conference Specific Evaluation: Pilot Data

- ▶ What did you like best about the format of the Pediatric Morbidity and Mortality Conference this academic year?
 - ▶ “The format and the approach to the cases and the fact that it goes straight to root causes of the problems”
 - ▶ “I liked the focus on systems of care rather than finger pointing”
 - ▶ “Good review, better audience participation this year (due to fish-bone). This is not the only tool of its type out there but is useful.”

M&M Conference Specific Evaluation: Pilot Data

- ▶ What changes would you like to make to the Pediatric Morbidity and Mortality Conference?
 - ▶ “More time for discussion; inclusion of a 'going forward' plan (what changes should be made as a result of this discussion?).”
 - ▶ “No need to shy away from individual errors - while the system can help us avoid errors, not all mistakes are the system's "fault" - people make mistakes, too, and we need to acknowledge that before we can fix it”

Challenges and Lessons Learned

▶ Challenges:

- ▶ Resident Surveys
- ▶ Time management

▶ Lessons Learned:

- ▶ Benefit of creating a multi-disciplinary environment

Next Steps



- ▶ Obtaining survey data
- ▶ Analyzing comparison between resident and faculty responses
- ▶ Collaborating with other departments and medical providers to enhance discussions:
 - ▶ Emergency Medicine
 - ▶ Pediatric Surgery
 - ▶ Nursing
 - ▶ Medical School and Hospital Leadership
- ▶ Create a plan to bring about more meaningful change

Conclusions

- ▶ The Pediatric Morbidity and Mortality Conference remains a valuable educational forum
- ▶ Use of the Fish-Bone Model:
 - ▶ Enhanced case discussions
 - ▶ Encouraged participants to analyze system strengths and shortcomings
- ▶ This format promotes a culture of safety
- ▶ Next Steps: Explore how these discussions lead to improved patient safety

Team Leaders

- ▶ Inga Aikman, MD and Elizabeth Ward MD
 - ▶ Pediatric Chief Residents
 - ▶ Changed format of the MM Conference
 - ▶ Formulated resident and faculty survey
 - ▶ Reviewed qualitative and quantitative data

- ▶ John Olsson MD
 - ▶ ECU Brody School of Medicine Department of Pediatrics
 - ▶ Faculty advisor

References

- ▶ 1. Orlander JD, Fincke G. Morbidity and Mortality Conference: A Survey of Academic Internal Medicine Departments. *J Gen Intern Med.* 2003; 18 (8) 656-658
- ▶ 2. Harbison SP, Regehr G. Faculty and Resident Opinions Regarding the Role of Morbidity and Mortality Conference. *Am J Surg.* 1999;177: 136-139.
- ▶ 3. Deis, JN, et. al. Transforming the Morbidity and Mortality Conference into an Instrument for Systemwide Improvement. *Advances in Patient Safety: New Directions and Alternative Approaches.* 2008; 2(08-0034-2).
- ▶ 4. Orlander JD et al. The Morbidity and Mortality Conference: The Delicate Nature of Learning from Error. *Academic Medicine.* 2002; 77 (10) 1001-1006

Questions/Comments

